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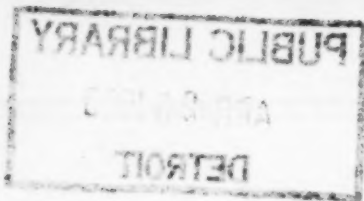
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# Public Health Reports

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## INSECTS FOUND ON AIRCRAFT AT MIAMI, FLA., IN 1938

By E. V. WELCH, *Junior Entomologist, United States Public Health Service*

This report lists the insects captured during routine quarantine inspections on seaplanes arriving at Pan American Airport, Dinner Key, Miami, Fla., from Central America, South America, and Mexico during 1938. The inspection of all incoming aircraft from these countries, especially South America, is made primarily for the purpose of detecting the presence of live mosquitoes, particularly *Aedes aegypti*, which might convey yellow fever. Careful search is made also for other obnoxious mosquitoes which might be brought into this country and introduced as new species. A record is kept of all insects which are found dead or captured alive on the planes, and this record affords a quarantine check on the effectiveness of disinsectization of the planes.

These inspections are performed by entomologists of the United States Quarantine Station at Miami. The planes from South America, the Canal Zone, and Mexico are scheduled to arrive at Miami in the late afternoon on Sunday, Monday, Tuesday, Wednesday, and Friday. Occasionally, planes arrive on other days, owing to unfavorable weather conditions, and there are a few night landings, more during the winter than the summer months, owing to adverse weather or mechanical conditions.

Immediately upon arrival the planes are placed in quarantine and, after disembarkation of passengers and crew, are boarded for inspection. A time limit of 6 minutes is set for the inspection of each plane before the unloading crew is permitted to come aboard. During this 6-minute period, searches are made in the passenger and pilot compartments. The mail, express, and baggage compartments are inspected during and after unloading, as these compartments are kept closed during flight and until time of unloading of the plane. Inspections are made without the benefit of any mechanical devices other than flashlight and glass chloroform tube.

The insects found on the planes are tentatively classified by the entomologists and then sent to the Bureau of Entomology of the United States Department of Agriculture in Washington, D. C., for

accurate identification. These identifications are then recorded on the monthly plane inspection reports and on the quarantine declarations of the particular plane inspected.

Disinsectization of aircraft is performed by employees of the airways. The plane is sprayed in the air by the steward, one-half hour before landing at Miami and other ports of call en route, with an atomizer sprayer (small hand pump gun) charged with a spray fluid consisting of one part of a standardized pyrethrum extract containing 2 grams of pyrethrin per 100 cc., and 4 parts of a highly refined mineral oil having a relatively high flash point. During the time of spraying, the plane's ventilators are closed and are kept closed for approximately 10 minutes after spraying. An effort is made to spray thoroughly all compartments of the plane, using between 5 and 10 cc. of the insecticide per 1,000 cubic feet. On overnight stops the planes are thoroughly sprayed after disembarkment of passengers and crew, and the plane is closed for the night.

Out of a total of 398 aircraft inspected during the year for possible mosquito infestation, 187 were found to harbor dead and live insects of various species. A total of 651 insects was recovered, of which 166 were alive when captured. In addition, 2 spiders were found, both alive.

Forty-five mosquitoes were found on the planes—40 dead and 5 alive. The dead mosquitoes were identified as follows: 6 *Aedes taeniorhynchus*, 6 *Culex quinquefasciatus*, 6 *Culex* sp., 1 *Mansonia titillans*, 18 *Mansonia indubitans*, 1 *Mansonia* sp., and 1 *Anopheles albimanus*. One dead mosquito was not identified as the specimen was mashed. Live mosquitoes captured were identified as follows: 3 *Culex quinquefasciatus*, 1 *Mansonia indubitans*, and 1 *Aedes taeniorhynchus*. No *Aedes aegypti* were recovered on any of the aircraft in 1938.

*Musca domestica* (house flies) were the most prevalent insects recovered on the planes throughout the year. Midges, gnats, and other small flies were next in number. Other insects found were as follows: beetles, wasps, ants, moths, cockroaches, chinch bugs, and stable flies. Two spiders were found on the planes.

Fewer live mosquitoes were found in 1938 than in the preceding year. This might indicate more efficient disinsectization. It appears, however, that, in spite of the precautions taken by the airways and health authorities, live mosquitoes and other insects are still being transported into this country by aircraft.

The accompanying tables present a detailed record of insects recovered on aircraft arriving at Miami, Fla., in 1938.

*Summary of insects found on aircraft arriving at Miami, Fla., from Central America,  
South America, and Mexico, Jan. 1-Dec. 31, 1938*

Order, genus, and species	Dead	Alive	Total	Order, genus, and species	Dead	Alive	Total
<b>DIPTERA</b>				<b>HYMENOPTERA</b>			
<i>Mosquitoes:</i>				<i>Prenolepis (Nylanderia) longicornis</i> (worker ants).....	0	4	4
<i>Mansonia titillans</i> .....	1	0	1	<i>Ponera</i> sp. (ant).....	1	0	1
<i>indubitans</i> .....	18	1	19	<i>Polybia occidentalis</i> (wasp).....	1	0	1
sp.....	1	0	1	<i>Apanteles</i> sp. (small wasp).....	1	0	1
<i>Culex quinquefasciatus</i> .....	6	3	9	<i>Attini-tride</i> (ant).....	0	1	1
sp.....	6	0	6	<i>Tiphia</i> sp. (parasitic wasp).....	0	1	1
<i>Aedes taeniorhynchus</i> .....	6	1	7	<i>Tetramorium quinqueense</i> (worker ant).....	1	0	1
<i>Anopheles albimanus</i> .....	1	0	1	<i>Pheidole</i> sp. (worker ant).....	1	0	1
Unidentified (specimen mashed).....	1	0	1				
	40	5	45		5	6	11
<i>Other Diptera:</i>				<b>HEMIPTERA</b>			
<i>Musca domestica</i> (house fly).....	110	59	169	<i>Cockroach</i> (species unknown).....	7	2	9
<i>Synthesomyia nudiseta</i> (fly).....	1	0	1	<i>Supella</i> sp. (cockroach).....	0	1	1
<i>Dilophus orbatius</i> (fly).....	1	0	1	<i>Periplaneta australasiae</i> (roach).....	1	0	1
<i>Drosophila melanogaster</i> (fruit fly).....	4	3	7	<i>Lygaeus</i> xn. sp. (chinch bug).....	0	1	1
<i>repleta</i> (gnat).....	2	3	5	<i>Sixeonotus</i> sp. (true bug).....	1	0	1
<i>melanica</i> (small fly).....	0	1	1		9	4	13
sp. (small fly).....	0	2	2				
sp. (gnat).....	0	1	1	<b>LEPIDOPTERA</b>			
<i>Acrosticta</i> sp. (small fly).....	3	0	3	<i>Elasmopalups lignosellus</i> (moth).....	0	2	2
<i>apicalis</i> (fruit fly).....	4	0	4	<i>Acrolophus</i> sp. (moth).....	1	0	1
<i>Euxesta notata</i> (fruit fly).....	0	1	1	<i>Laphygma frugiperda</i> (moth).....	1	1	2
<i>notata</i> (gnat).....	1	0	1	<i>Prausta</i> sp. (moth).....	1	0	1
<i>quaternaria</i> (fruit fly).....	0	1	1	<i>Hellula phidilealis</i> (moth).....	1	0	1
sp. (small fly).....	1	0	1	<i>Cydosia nobilitella</i> (moth).....	0	1	1
<i>Hybos</i> sp. (dance fly).....	0	1	1	<i>Dichomeris rusticus</i> (moth).....	1	0	1
<i>Dasyhelea</i> sp. (crane fly).....	1	0	1	<i>Plodia interpunctella</i> (moth).....	0	1	1
<i>Limonia</i> sp. (crane fly).....	1	0	1	<i>Recurvaria</i> sp. (moth).....	1	0	1
<i>Stomoxys calcitrans</i> (stable fly).....	1	2	3	Unidentified (moth).....	2	0	2
<i>Culicoides</i> sp. (gnat).....	1	0	1		8	5	13
<i>Oscinella</i> sp. (small fly).....	1	0	1	<b>ORTHODOPTERA</b>			
<i>Hippelates</i> sp. (gnat).....	1	2	3	Unidentified cricket.....	0	1	1
<i>pallipes</i> (gnat).....	2	1	3				
<i>Scatella</i> sp. (small fly).....	3	1	4	<b>COLEOPTERA</b>			
<i>Medetera</i> sp. (small fly).....	1	0	1	<i>Telanus</i> sp. (beetle).....	0	1	1
<i>Drapetis</i> sp. (small fly).....	0	3	3	<i>Chauliognathus marginatus</i> (beetle).....	0	1	1
<i>Sciara</i> sp. (gnat).....	5	5	10	<i>Bembion</i> sp. (beetle).....	1	0	1
<i>Chrysotus</i> sp. (gnat).....	1	0	1	<i>Cycloneda sanguinea</i> (beetle).....	0	1	1
sp. (fly).....	0	1	1	<i>Cyclocephala lunylata</i> (beetle).....	1	0	1
<i>Pelastoneurus</i> sp. (fly).....	0	1	1	<i>Cycloneda sanguinea</i> (lady bird beetle).....	1	0	1
<i>Megastela</i> sp. (gnat).....	1	2	3	<i>Attagenus</i> sp. (carpet beetle larva).....	0	1	1
<i>Prohippelates pallidus</i> (gnat).....	0	2	2	Unidentified beetles.....	3	0	3
<i>Foreipomyia</i> sp. (midge).....	3	1	4		6	4	10
sp. (small fly).....	1	0	1	<b>Grand total</b> .....	486	165	651
<i>Antherigona orientalis</i> (small fly).....	1	0	1				
<i>Euryneurasoma slossonae</i> (small fly).....	1	0	1	<b>OTHER ARTHROPODS</b>			
<i>Scenopinus</i> sp. (small fly).....	1	0	1	<i>Plexeppus</i> sp. (spider).....	0	1	1
<i>Piophilha casei</i> (small fly).....	1	0	1	<i>Dendryphantus</i> sp. (spider).....	0	1	1
<i>Leptocera</i> sp. (small fly).....	0	1	1		0	2	2
<i>Psilcephala</i> sp. (small fly).....	0	1	1	<b>Total</b> .....	0	2	2
<i>Plagiops</i> sp. (gnat).....	0	1	1				
<i>Chaoborus</i> sp. (mosquito-like insect).....	15	0	15				
Unidentified (small fly).....	3	1	4				
Unidentified (gnat).....	1	0	1				
Unidentified (midge).....	1	0	1				
<i>Chironomus</i> sp. (midge).....	237	37	274				
<i>Pentaneura</i> sp. (midge).....	4	6	10				
<i>Clinotanypus</i> sp. (midge).....	1	0	1				
Species of <i>Agromyzidae</i> (gnat).....	1	0	1				
<i>Agromyza</i> sp. (gnat).....	1	0	1				
	418	140	558				

*Record of insects found on aircraft arriving at Miami, Fla., Jan. 1-Dec. 1, 1938, by  
port of departure*

PLANES FROM BARRANQUILLA, COLOMBIA

[Number of planes inspected, 110; number of inspections revealing insects, 59]

Insects found	Dead	Alive	Insects found	Dead	Alive
<b>DIPTERA</b>			<b>HYMENOPTERA</b>		
<i>Mosquitoes:</i>			<i>Prenolepis (Nylanderia) longicornis</i>		
<i>Mansonia titillans</i> .....	1	0	(worker ants).....	0	4
<i>Mansonia indubitans</i> .....	18	1	<i>Ponera</i> sp. (ant).....	1	0
<i>Culex quinquefasciatus</i> .....	1	0	<i>Polybia occidentalis</i> (wasp).....	1	0
<i>Culex</i> sp.....	1	0	<i>Apanteles</i> sp. (small wasp).....	1	0
<i>Aedes taeniorhynchus</i> .....	2	0			
Unidentified (specimen mashed).....	1	0	<b>HEMIPTERA</b>		
Total.....	24	1	<i>Cockroach</i> (species unknown).....	2	0
<i>Other Diptera:</i>			<i>Lygaeus</i> in. sp. (chinch bug).....	0	1
<i>Musca domestica</i> (house fly).....	29	23	<b>LEPIDOPTERA</b>		
<i>Synthesiomia nudiseta</i> (fly).....	1	0	<i>Elasmopalpus lignosellus</i> (moth).....	0	2
<i>Dilophus orbatus</i> (fly).....	1	0	<i>Acrolophus</i> sp. (moth).....	1	0
<i>Drosophila melanogaster</i> (fruit fly).....	0	2	<i>Laphygma frugiperda</i> (moth).....	0	1
<i>Drosophila repleta</i> (gnat).....	1	2			
<i>Acrosticta</i> sp. (small fly).....	3	0	<b>COLEOPTERA</b>		
<i>Acrosticta apicalis</i> (fruit fly).....	1	0	<i>Telanus</i> sp. (beetle).....	0	1
<i>Euxesta notata</i> (fruit fly).....	0	1	Total of all insects.....	73	49
<i>Euxesta quaternaria</i> (fruit fly).....	0	1	<b>OTHER ARTHROPODS</b>		
<i>Hybos</i> sp. (dance fly).....	0	1	<i>Plexippus</i> sp. (spider).....	0	1
<i>Limonia</i> sp. (crane fly).....	1	0			
<i>Hippelates</i> sp. (gnat).....	0	1			
<i>Scatella</i> sp. (small fly).....	3	0			
<i>Medetera</i> sp. (small fly).....	1	0			
<i>Drapetis</i> sp. (small fly).....	0	3			
<i>Sciara</i> sp. (gnat).....	1	2			
<i>Chrysotus</i> sp. (gnat).....	1	0			
<i>Pelastoneurus</i> sp. (fly).....	0	1			
<i>Megaselia</i> sp. (gnat).....	0	1			
<i>Forcipomyia</i> sp. (midge).....	0	1			

Scheduled ports of call of planes from Barranquilla: Kingston, Cienfuegos, and Miami.

Length of time required for making the flight: 1 day.

Type of plane used on flight: Sikorsky, 12-ton, 32 passenger, 4-motored, clipper seaplane.

PLANES FROM CRISTOBAL, C. Z.

[Number of planes inspected, 48; number of inspections revealing insects, 23]

Insects found	Dead	Alive	Insects found	Dead	Alive
<b>DIPTERA</b>			<b>COLEOPTERA</b>		
<i>Mosquitoes:</i>			<i>Chauliognathus marginatus</i> (beetle).....		
<i>Aedes taeniorhynchus</i> .....	0	1	<i>Bembion</i> sp. (beetle).....	0	1
Total.....	0	1	<i>Cycloneda sanguinea</i> (lady bird beetle).....	1	0
<i>Other Diptera:</i>			<b>LEPIDOPTERA</b>		
<i>Musca domestica</i> (house fly).....	5	11	<i>Laphygma frugiperda</i> (moth).....	1	0
<i>Drosophila melanica</i> (small fly).....	0	1			
<i>Drosophila</i> sp. (small fly).....	0	2	<b>HEMIPTERA</b>		
<i>Hippelates</i> sp. (gnat).....	0	1	<i>Cockroach</i> (sp. unknown).....	1	0
<i>Prohippelates pallidus</i> (gnat).....	0	2	Total, all insects.....	5	1
<i>Forcipomyia</i> sp. (small fly).....	1	0			
<i>Antherigonia orientalis</i> (small fly).....	1	0			
<i>Euryneurasoma slossonae</i> (small fly).....	1	0			
<i>Scenopinus</i> sp. (small fly).....	1	0			
Unidentified (small fly).....	0	1			
Unidentified (midge).....	1	0			

Scheduled ports of call of planes from Cristobal: Kingston, Cienfuegos, and Miami.

Length of time required for making the flight: 1 day.

Type of plane used on this flight: Sikorsky, 12-ton, 32-passenger, 4-motored, clipper seaplane.



## Record of insects found on aircraft arriving at Miama, Fla., etc.—Continued

## PLANES FROM RIO DE JANEIRO, BRAZIL

[Number of planes inspected, 48; number of inspections revealing insects, 19]

Insects found	Dead	Alive	Insects found	Dead	Alive
<b>DIPTERA</b>			<b>HEMIPTERA</b>		
<i>Mosquitoes:</i>			<i>Sixeonotus</i> sp. (true bug).....	1	0
<i>Culex quinquefasciatus</i> .....			<i>Supella</i> sp. (cockroach).....	0	1
<i>Culex</i> sp.....	1	0	<b>ORTHODOPTERA</b>		
Total.....	4	0	<i>Unidentified cricket</i> .....	0	1
<i>Other Diptera:</i>			<b>LEPIDOPTERA</b>		
<i>Musca domestica</i> (house fly).....	5	0	<i>Frausta</i> sp. (moth).....	1	0
<i>Acrosticta apicalis</i> (small fly).....	11	5	Total, all insects.....	28	8
<i>Drosophila melanogaster</i> (fruit fly).....	3	0			
<i>Unidentified small fly</i> .....	3	0			
<i>Unidentified gnat</i> .....	2	0			
<i>Sciara</i> sp. (gnat).....	1	0			
	1	1			

Scheduled ports of call of planes from Rio de Janeiro: Victoria, Bahia, Recife, Camocin, Para, Paramaribo, Port of Spain, San Juan, San Pedro, Port au Prince, Antilla, and Miami.

Length of time required for making the flight: 3 days.

Type of plane used on this flight: Sikorsky, 12-ton, 32-passenger, 4-motored, clipper seaplane.

## PLANES FROM MARACAIBO, VENEZUELA

[Number of planes inspected, 31; number of inspections revealing insects, 24]

Insects found	Dead	Alive	Insects found	Dead	Alive
<b>DIPTERA</b>			<b>Other Diptera—Continued.</b>		
<i>Mosquitoes:</i>			<i>Chironomus</i> sp. (midge).....	237	63
<i>Anopheles albimanus</i> .....	1	0	<i>Pentaneura</i> sp. (midge).....	4	6
<i>Aedes taeniorhynchus</i> .....	1	0	<i>Clinotanytus</i> sp. (midge).....	1	0
Total.....	2	0	<b>COLEOPTERA</b>		
<i>Other Diptera:</i>			<i>Attagenus</i> sp. (carpet beetle larva).....	0	1
<i>Musca domestica</i> (house fly).....	5	2	<b>HEMIPTERA</b>		
<i>Stomoxys calcitrans</i> (stable fly).....	1	0	<i>Periplaneta australasiae</i> (roach).....	1	0
<i>Leptocera</i> sp. (small fly).....	0	1	<b>LEPIDOPTERA</b>		
<i>Chrysotus</i> sp. (fly).....	0	1	<i>Hellula phidilealis</i> (moth).....	1	0
<i>Oscinella</i> sp. (small fly).....	1	0	Total, all insects.....	270	47
<i>Hippelates</i> sp. (gnat).....	1	0			
<i>Culicoides</i> sp. (gnat).....	1	0			
<i>Chaoborus</i> sp. (mosquito-like insect).....	15	0			

Scheduled ports of call of planes from Maracaibo: Port au Prince and Miami.

Length of time required for making the flight: 1 day.

Type of seaplane used on this flight: Sikorsky, 12-ton, 32-passenger, 4-motored clipper seaplane.

## PLANES FROM PORT OF SPAIN, TRINIDAD

[Number of planes inspected, 77; number of inspections revealing insects, 30]

Insects found	Dead	Alive	Insects found	Dead	Alive
<b>DIPTERA</b>			<b>Other Diptera—Continued.</b>		
<i>Mosquitoes:</i>			<i>Unidentified small fly (gnat)</i> .....	1	0
<i>Culex quinquefasciatus</i> .....	3	3	<i>Forcipomyia</i> sp. (midge).....	3	0
<i>Aedes taeniorhynchus</i> .....	2	0	<b>HYMENOPTERA</b>		
<i>Mansonella</i> sp.....	1	0	<i>Attini</i> -tribe (ant).....	0	1
Total.....	6	3	<i>Tiphia</i> sp. (parasitic wasp).....	0	1
<i>Other Diptera:</i>			<b>COLEOPTERA</b>		
<i>Musca domestica</i> (house fly).....	30	6	<i>Unidentified beetles</i> .....	3	0
<i>Stomoxys calcitrans</i> (stable fly).....	0	1	<b>HEMIPTERA</b>		
<i>Drosophila melanogaster</i> (fruit fly).....	1	0	<i>Cockroach</i> .....	0	1
<i>Dasyhela</i> sp. (crane fly).....	1	0	<b>LEPIDOPTERA</b>		
<i>Sciara</i> sp. (gnat).....	1	1	<i>Cydosia nobilitella</i> (moth).....	0	1
<i>Scatella</i> sp. (small fly).....	0	1	<i>Unidentified (moth)</i> .....	1	0
<i>Euxesta notata</i> (gnat).....	1	0	Total, all insects.....	61	17
<i>Species of Agromyzidae</i> (gnat).....	1	0			
<i>Agromyza</i> sp. (gnat).....	1	0			
<i>Hippelates pallipes</i> (gnat).....	2	1			

Scheduled ports of call of planes from Port of Spain: San Juan, San Pedro de Macoris, Port au Prince, Antilla, and Miami.

Length of time required for making the flight: 1 day.

Type of plane used on this flight: Sikorsky, 12-ton, 32-passenger, 4-motored clipper seaplane.

## Record of insects found on aircraft arriving at Miami, Fla., etc.—Continued

## PLANES FROM SAN JUAN, P. R.

[Number of planes inspected, 16; number of inspections revealing insects, 8]

Insects found	Dead	Alive	Insects found	Dead	Alive
<b>DIPTERA</b>			<b>Other Diptera—Continued.</b>		
<i>Mosquitoes:</i>			<i>Euxesta</i> sp. (small fly).....	1	0
<i>Aedes taeniorhynchus</i> .....	1	0	<i>Sciara</i> sp. (gnat).....	2	1
<i>Culex quinquefasciatus</i> .....	1	0	<i>Megaselia</i> sp. (gnat).....	0	1
<i>Culex</i> sp. ....	1	0	<i>Chironomus</i> sp. (midge).....	0	1
Total.....	3	0	Total, all insects.....	16	5
<i>Other Diptera:</i>					
<i>Musca domestica</i> (housefly).....	10	2			

Scheduled ports of call of planes from San Juan: San Pedro de Macoris, D. R., Port au Prince, Antilla, and Miami.

Length of time required for making flight: 1 day.

Type of plane used on this flight: Sikorsky, 6-ton, 13-passenger, 2-motored, baby clipper seaplane.

## PLANES FROM MERIDA, YUCATAN, REPUBLIC OF MEXICO

[Number of planes inspected, 50; number of inspections revealing insects, 15]

Insects found	Dead	Alive	Insects found	Dead	Alive
<b>DIPTERA</b>			<b>LEPIDOPTERA</b>		
<i>Musca domestica</i> (housefly).....	5	7	<i>Dichomeris rusticus</i> (moth).....	1	0
<i>Stomoxys calcitrans</i> (stable fly).....	0	1	<i>Plodia interpunctella</i> (moth).....	0	1
<i>Drosophila repleta</i> (small fly).....	0	1	<i>Recurvaria</i> sp. (moth).....	1	0
<i>Piophilha casei</i> (small fly).....	1	0	Unidentified (moth).....	1	0
<i>Psilcephala</i> sp. (small fly).....	0	1	Total, all insects.....	10	12
<i>Megaselia</i> sp. (small fly).....	1	0			
<b>COLEOPTERA</b>					
<i>Cycloneda sanguinea</i> (beetle).....	0	1			

Ports of call of planes from Merida: Havana, Cuba, and Miami, Fla.

Length of time required for making the flight: 1 day.

Type of plane used on this flight: Sikorsky, 6-ton, 13-passenger, 2-motored baby clipper seaplane.

## PLANES FROM BUENOS AIRES, ARGENTINA

[Number of planes inspected, 18; number of inspections revealing insects, 9]

Insects found	Dead	Alive	Insects found	Dead	Alive
<b>DIPTERA</b>			<b>COLEOPTERA</b>		
<i>Musca domestica</i> (housefly).....	6	3	<i>Cyclocephala lunylata</i> (beetle).....	1	0
<i>Drosophila melanogaster</i> (fruit fly).....	0	1	Total of all insects.....	10	6
<i>Drosophila repleta</i> (gnat).....	1	0			
<i>Drosophila</i> sp. (gnat).....	0	1	<b>OTHER ARTHROPODS</b>		
<i>Plagiops</i> sp. (gnat).....	0	1	<i>Dendryphanter</i> sp. (spider).....	0	1
<b>HYMENOPTERA</b>					
<i>Tetramorium quinleense</i> (worker ant).....	1	0			
<i>Pheidole</i> sp. (worker ant).....	1	0			

Scheduled ports of call of planes from Buenos Aires: Montevideo, Pto. Alegre, Santos, Rio de Janeiro, Victoria, Salvador, Recife, Fortaleza, Belem, Port of Spain, San Juan, Antilla and Miami.

Length of time required to make this flight: 4½ days.

Type of plane used on flight: Sikorsky, 12-ton, 32-passenger, 4-motored, clipper seaplane.

NOTE.—In July 1938 the plane from Buenos Aires discontinued the through flight to Miami. It makes connection with the planes from Rio de Janeiro.



## STUDIES ON OXYURIASIS

XIX. EXAMINATIONS OF CHILDREN IN A PRIVATE NURSERY SCHOOL  
OVER AN 18-MONTH PERIOD \*

By ELOISE B. CRAM, *Senior Zoologist*, and M. O. NOLAN, *Assistant Nematologist*,  
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In a modern, well-equipped private nursery school in Washington, D. C., an investigation was conducted relative to the incidence of oxyuriasis, or infestation with pinworms (*Enterobius vermicularis*). The pupils consisted of white children of both sexes from families of a fairly high social-economic status. In January 1937, the director of the school discovered pinworms on one of the children. The purpose of the investigation was to determine the incidence of pinworms in the children at that time and at later times after control measures had been attempted by the director of the school. The extent of these control measures was limited by the fact that the pupils, with very few exceptions, were exclusively day pupils. However, the parents were notified by the director when their child was found to be positive for pinworms; in some cases control measures were instituted at home, including examination of other members of the family and treatment of pinworm cases thus discovered.

The difficulty of detecting pinworm infestations, because of the peculiar life history of the parasite, has been discussed in a previous paper (1). The number of examinations made in the course of the present investigation is not considered sufficiently large to be conclusive as to the *exact* incidence, but the evidence indicates that the incidence was *at least* as high as the figures given, in spite of the efforts at control. The actual incidence was undoubtedly higher than that discovered.

The length of stay of pupils in the school was variable; the turnover was greater in some months than in others. During the course of the investigation 131 children were examined, as noted below.

## PROCEDURE

The NIH anal swab, a cellophane-tipped kind originally described by Hall (2), was used; on children at the school, swabs were made at the end of the rest period in the early afternoon. Infested individuals were given a series of nonmedicated enemas which were administered by the director of the school, usually in the late afternoon. It was not possible for the writers to obtain data as to the number of enemas and the period of time during which they were given. Four persistent

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cases of oxyuriasis, in which anal swabs were positive for two to three successive months after enema treatments, were given the gentian violet treatment described by Wright, Brady, and Bozicevich (3). During the course of the investigation, the staff at the school paid strict attention to such measures as might prevent reinfection of the children. Lysol was used daily to clean the toilets and wash bowls, and was sprinkled on the floors prior to sweeping. The cots and blankets used by the children during the rest period were put out in the sunshine for airing. The children used individual towels; their hands were always washed following the use of the toilet, and also before handling any food.

#### RESULTS OF EXAMINATIONS

The children examined comprised 2 principal groups—the larger group, 106 in number, consisting of those who were in the school for varying lengths of time in 1937, some of them continuing in the first half of 1938, and the smaller group of newcomers, 25 in number, consisting of those who entered in 1938, practically a year after the examinations had begun and control measures had been instituted; none of the smaller group was under observation for more than 6 months.

In the group of 106 children examined during the 18-month period, 58 children, or 55 percent, showed evidence of pinworm infestation at some time during this period; 974 anal swabs were used, or an average of 9.2 swabs per child, with pinworm eggs recovered from 124, or approximately 13 percent of the swabs. As regards the 2 sexes, a higher incidence was found in the boys than in the girls. Of the 106 children, 66 were boys, with 39, or 59 percent, positive for pinworms, and 40 were girls, with 19, or 48 percent, positive for pinworms. However, as is shown in table 1, 91 of the 106 children were from 2 to 5 years of age, and the difference in incidence in the 2 sexes is less striking in this larger group of children, who might be classed as of "preschool age," than in the smaller group of children of "school age," 6 to 9 years. Of 56 boys in the younger group, 32, or 57 percent, showed pinworm infestation, as compared with 35 girls, 18 of whom, or 51 percent, showed pinworm infestation. The remaining 15 children, of ages 6 to 9 years, form such a small group that differences in incidence in the 2 sexes are of questionable significance, especially in view of the fact that the sexes were not equally represented. Of the 10 boys, 7, or 70 percent, were positive for pinworms, whereas of the 5 girls, only 1, or 20 percent, was positive. Disregarding the sex differences and considering only age differences, in the larger group of 91 children of "preschool age," 40 children, or 44 percent, were positive, as compared with the smaller group of 15 children of "school age,"

TABLE 1.—*Distribution by age and sex of children examined during 1937-38 for oxyuriasis*

Age in years.....	2-3			4-5			6-7			8-9			Total		
	Total number	Number positive	Percent positive	Total number	Number positive	Percent positive	Total number	Number positive	Percent positive	Total number	Number positive	Percent positive	Total number	Number positive	Percent positive
Male.....	15	7	47	41	25	61	8	5	63	2	2	100	66	39	59
Female.....	20	8	40	15	10	67	4	1	25	1	0	0	40	19	48
Total.....	35	15	43	56	35	63	12	6	50	3	2	67	106	58	55

with 8 children, or 53 percent, positive. Subdividing the larger group, the youngest children, that is, those 2 to 3 years old, showed a lower incidence, with 15 of 35 children, or 43 percent, infested, as compared with those 4 to 5 years old, among whom 35 of 56 children, or 63 percent, were infested.

Distinct from the 106 children who entered the school during 1937 and who form the group with the 18-month history, was a group of 25 children who entered the school for the first time in 1938. This latter group was considered separately in order to obtain some data as to the incidence of pinworms among these newcomers at the time of their arrival and the subsequent increase or decrease in incidence, for comparison with the history of children of the other group. Of the 25 newcomers, 17 were boys and 8 were girls. In this group, 2 children were positive for pinworms. Both cases were in boys; one of the boys, 6 years old, was positive on the first examination, soon after entering the school; the other boy, 5 years old, was negative on two examinations made during the first month, but positive on the third examination made early in the second month. In the course of the 6 months 97 swabs were made, or an average of approximately 4 swabs per child; only the 2 swabs referred to above, or 2 percent, were positive.

Considering all children examined in the course of the investigation, of 131 children, 60 children, or 46 percent, were positive for pinworms; 1,071 swabs were made, of which 126 swabs, or 12 percent, showed pinworm eggs.

The number of children examined each month, the number of swabs made, and the positive findings in both respects are shown in table 2; the time of discovery of the 60 positive cases is also indicated. Following the initial finding, in January 1937, of 2 cases of oxyuriasis in 2 children examined, the more extensive investigation was started in February. The monthly differences in incidence findings in the larger group of children are shown in figure 1. February 1937 showed the highest incidence, with evidence of pinworms in 42 percent of 24 children examined; the next highest peak is seen to be in October, when 41 percent of 37 children examined were positive. After the October finding, the staff at the school made even greater efforts toward control; gentian violet treatment was resorted to in several cases, as noted above, and an effort was made to keep pinworm-positive children isolated from the others. Examinations during the next several months indicated a marked reduction in incidence. The validity of this decline was tested critically by increasing the number of swab examinations; a larger number of swabs was examined in March 1938 than in any other one month, both as to total number and as to average number per child. During this month 115 swabs were made on 32 children, with only 3 percent of the children, and

TABLE 2.—Results of monthly examinations of nursery school children for oxyuriasis

1937													1938												
Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July							

only 0.9 percent of the swabs, being positive. No new cases of pinworm infestation were found during the last 5 months of the investigation.

In addition to the pupils in the school, there were examined 34 persons associated with the pupils; 8 of these persons, or 24 percent, were positive for pinworms, on the basis of examinations of 127 swabs, with 12 swabs, or 9 percent, positive. Of these 8 cases of oxyuriasis, 3 were mothers, 1 was an older brother, and 1 a maid in

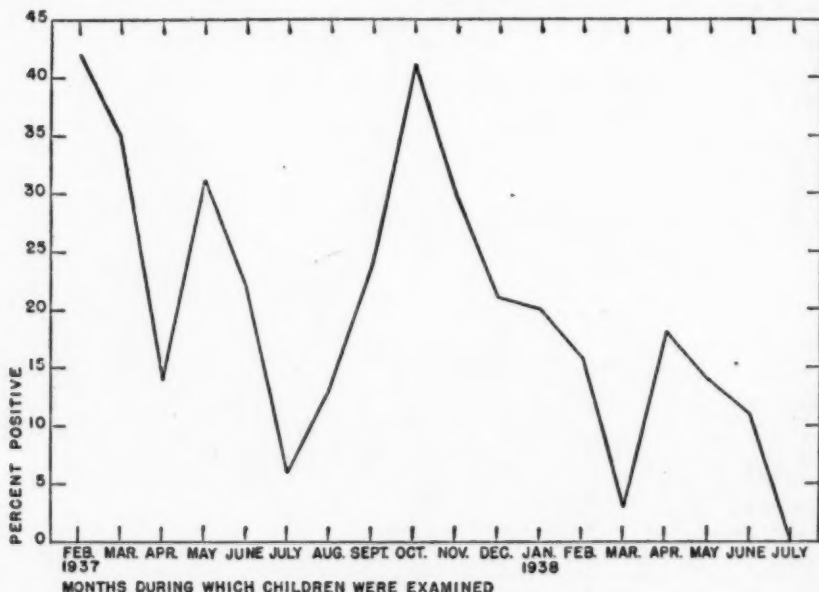


FIGURE 1.—Monthly variations in percentage of children found positive for pinworms during application of control measures.

the home of pupils who were positive; the remaining 3 were persons associated with the pupils in the school.

#### DISCUSSION

The findings indicate that a considerable number of cases of oxyuriasis may be present in a nursery school before any one of the infestations comes to the attention of the director of the school and that the incidence may continue to be fairly high in spite of attempted control measures. The fact that the pupils are under control of the school only during the day and may be exposed to infection with pinworms in their home environment as well as in the school environment raises many difficulties in attempts to eradicate the infestations. Apparent declines in incidence may be only temporary, and the investigation must be extended over a considerable period of time before improvement can be accepted as real. In this case, after



concerted attempts at control through both therapeutic and prophylactic measures, the incidence figures during the last 6 months of the 18-month period were substantially lower and no new cases appeared during the last 5 months of that period.

#### SUMMARY

In a modern, well-equipped private nursery school for white children, examinations for pinworms were made by the use of the NIH anal swab. Of 106 children in the school during 1937, some continuing into 1938, 58 children, or 55 percent, were positive; 974 swabs were used, with 124 swabs, or 13 percent, positive. Of the 106 children, 66 were boys, with 39, or 59 percent, positive; 40 were girls, with 19, or 48 percent, positive. Most of the children were from 2 to 5 years old, but a few were older; those 2 to 3 years old showed an incidence of 43 percent, and those 4 to 5 years old an incidence of 63 percent, without any marked difference in incidence in the two sexes. Of an additional 25 children entering the school in 1938, 2, or 8 percent, were positive. In addition to the pupils, 34 persons, either relatives of pupils or persons associated with the school, were examined; 8 of these persons, or 24 percent, were positive for pinworms.

Control measures of a therapeutic and prophylactic nature were instituted. The results of examinations varied considerably in different months; during the last 5 months no new cases of pinworm infestation were discovered and the incidence findings were substantially lower than during any similar period previously studied.

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## A SIMPLE DEVICE FOR SAMPLING AIR-BORNE BACTERIA

By ALEXANDER HOLLAENDER, Biochemist, and J. M. DALLAVALLE, Passed Assistant Sanitary Engineer, United States Public Health Service \*

Air-borne bacteria studies conducted by the Public Health Service have frequently required the use of a simple device whereby the volume of air sampled could be accurately measured. Such a device has been constructed which has made use of the impingement principle and has taken advantage of the convenience of the standard Petri dish method of culturing bacteria.

### DESCRIPTION OF APPARATUS

The design of the sampling device described in this paper is shown in figure 1. It consists of a brass container with a removable bottom. The container is fitted with an inverted 60°, 3-inch glass funnel which sets approximately a centimeter from the bottom of a standard type Petri dish. The latter is placed in the lower portion of the container before use and is then screwed tightly against the washer indicated in the figure. The inside of the funnel and the rim were swabbed with alcohol before use. The air sample passes through the funnel stem,

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and the air-borne organisms and dust are impinged upon the medium placed in the Petri dish. The air sample is drawn by means of an ordinary impinger pump,<sup>1</sup> which, for the purposes of the tests described is in series with a flowmeter.

Typical plates obtained with this device are shown in figure 2. These plates have a higher number of bacterial colonies in the center, and a decreasing number toward the edge. Unless the number of bacteria in the atmosphere is high, the colonies in the center of the plate will not be crowded and make counting difficult. The number per plate can be satisfactorily adjusted best by varying the amount of air samples. Best results are obtained with plates having not more than 200 colonies per plate.

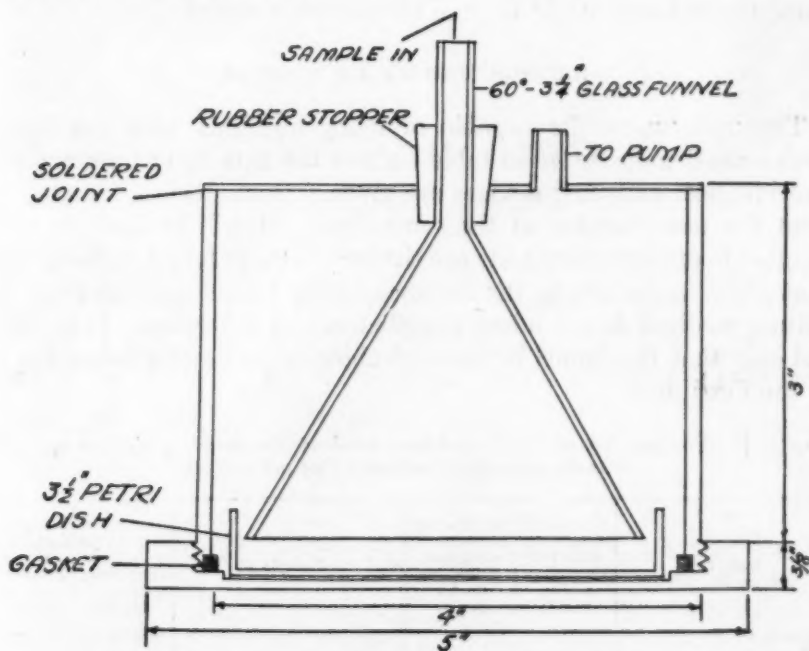


FIGURE 1.—Funnel device used for sampling air-borne bacteria

Two types of tests were made with the sampling device described above—(a) The reliability of the device when duplicate samples are taken, that is, the reproducibility of results with the technique employed and (b) the most efficient rate of sampling. All tests were made in a closed chamber approximately 10 by 10 by 7 feet. The chamber was constructed with sheet metal walls and ceiling, soldered at all joints. In this chamber was sprayed, by means of a paint spray gun, a culture of *B. subtilis* (hay bacillus). This organism was chosen because of its toughness in the spore stage and ease of preparation.

<sup>1</sup> Bloomfield, J. J., and DallaValle, J. M.: The determination and control of industrial dust. Pub. Health Bull. No. 217, Apr. 1935.

The organism was prepared from an 8- to 10-day culture grown on meat agar slants. The culture was washed off with physiological salt solution, shaken thoroughly to break up all clumps, and filtered through cotton. After the organism was sprayed into the room, the droplets were permitted to settle for 30 minutes before sampling was undertaken. An ordinary 12-inch wall-type oscillating fan kept the air moving in order to maintain as uniform a distribution of the organism as possible.

All cultures of the air-borne organisms sampled with the device were made on agar. The nutrient agar used was soft (15 grams per liter preparation) and was poured in a heavier layer in the Petri dishes than is customary in bacteriological investigations. The plates were incubated for 48 hours at 32° C., and all colonies counted.

#### REPRODUCIBILITY OF RESULTS

The uniform results capable of being obtained with the funnel device are demonstrated in table 1 where the data from tests made of two identical sampling devices are given. Both devices sampled air from the test chamber at the same time. It will be seen that the results of corresponding tests are similar. It was found in these tests that slight variations in the distance of the funnel opening from the culture medium do not affect the efficiency of collection. It is essential only that the funnel be inserted about  $\frac{1}{2}$  centimeter below the lip of the Petri dish.

TABLE 1.—Comparison of two funnel-type air-bacteria sampling devices operating simultaneously at one cubic foot per minute

Sample <sup>1</sup>	Number of bacteria per cubic foot (Sampling device No. 1)	Number of bacteria per cubic foot (Sampling device No. 2)	Sample	Number of bacteria per cubic foot (Sampling device No. 1)	Number of bacteria per cubic foot (Sampling device No. 2)
1.....	23.6	22.5	6.....	15.1	20.8
2.....	24.7	25.9	7.....	20.7	16.8
3.....	23.2	25.8	8.....	14.0	19.6
4.....	18.6	16.8	9.....	17.4	16.8
5.....	17.3	19.3			

<sup>1</sup> Even numbers represent 3-minute samples; odd numbers are 5-minute samples.

#### RATE OF SAMPLING

It was early recognized that the efficiency of the new device depended upon the rate of sampling. Tests to determine the optimum rate of sampling were made as follows: Samples were taken simultaneously with two funnel devices, one of which operated at a fixed rate of 1 cubic foot per minute, while the other was adjusted to rates of flow ranging from  $\frac{1}{4}$  cubic foot per minute to  $1\frac{1}{4}$  cubic feet. Greater

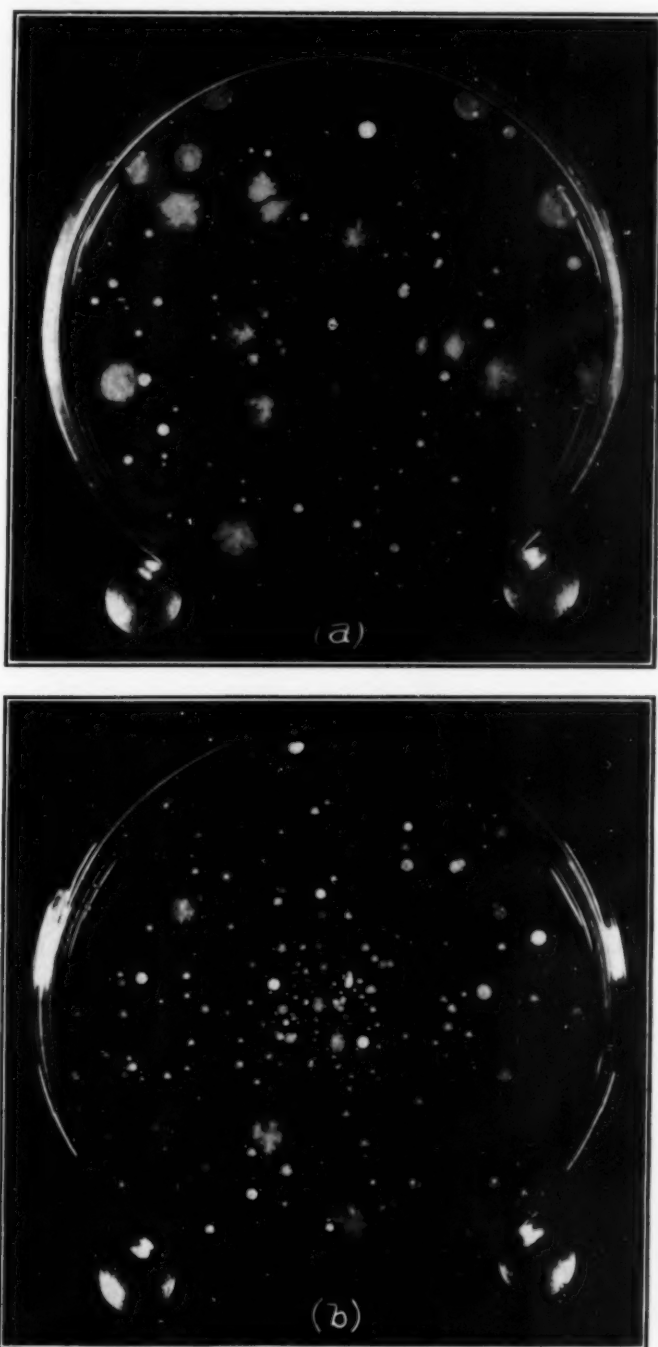
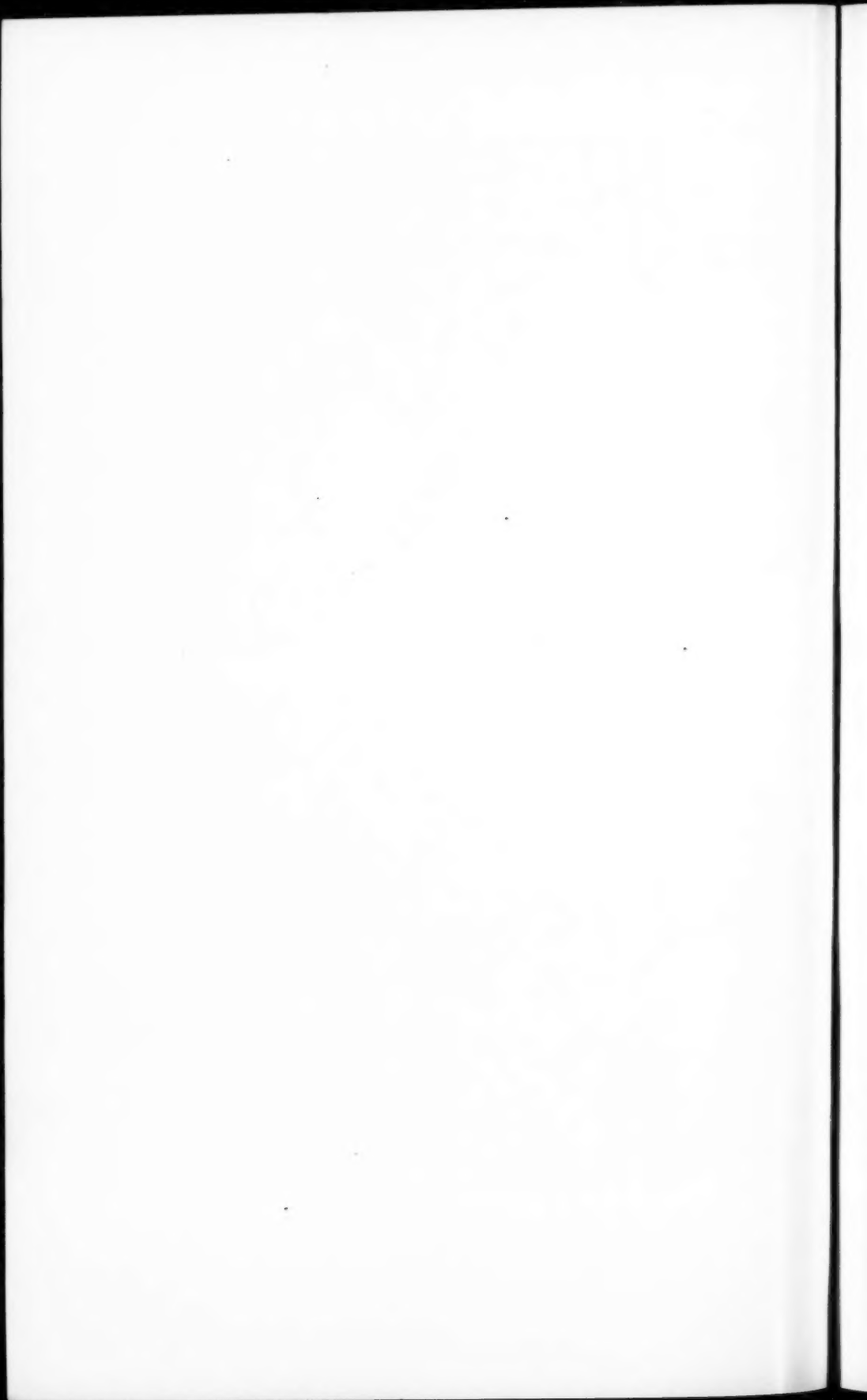


FIGURE 2.—Petri dish cultures obtained with funnel device. Incubated 48 hours at 32° C. (3 cu. ft. samples). (a) Low concentration of organisms. (b) High concentration of organisms.





volumes were not attempted since the force of the air current on the Petri dish distorted the surface of the agar and made counting difficult. The results of these tests are shown plotted in figure 3. It will be seen in the figure that a sampling rate of 1 cubic foot per minute is most effective for the agar used. For this reason the ordinates are plotted on a percentage basis, taking the efficiency of sampling to be 100 when the rate is 1 cubic foot per minute. The points plotted in figure 3 each represent 6 or more samples. The sampling devices were frequently interchanged in order to eliminate as much as possible slight differences due to the adjustment of the funnel. (See table 1.)

One of the important features of the device is that it can be used in conjunction with standard impinger equipment which can be easily calibrated. The bacterial population of air spaces is thus easily determined on a volume basis.

Tests made with three funnel devices connected in series indicate that approximately 80 percent of the air-borne organisms are col-

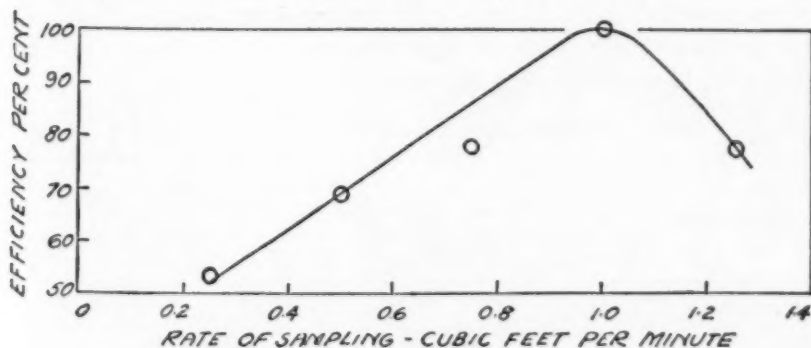


FIGURE 3.—Relationship between rate of sampling and efficiency of funnel device.

lected in the first, about 15 percent in the second, and the remainder, 5 percent, in the third. For all practical purposes, therefore, the unit is sufficient to indicate the bacterial burden of air spaces.

#### SUMMARY

A simple device is described for sampling air-borne bacteria consisting of a container with an inverted 60°, 3-inch glass funnel which sets over a standard Petri dish. Tests were made with this device indicating that it has an optimum sampling rate of 1 cubic foot per minute. Results are shown to be easily duplicated and bacterial concentrations can be expressed on a volume basis.

#### ACKNOWLEDGMENT

Acknowledgment is made to Mr. Howard W. Gilbert for suggesting the funnel technique here described.

## INFLUENZA PREVALENCE

The incidence of influenza, as reported to the United States Public Health Service by the State health authorities, showed a decline for the week ended April 1, 1939, as compared with the preceding week—the third such successive decline. Evidently the mild epidemic reached its peak during the week of March 11, when 18,135 cases were reported. The decrease in the current week is shown in all geographic areas except the East and West South Central groups and the Pacific States.

The weekly numbers of pneumonia deaths in a large group of cities have, so far, remained below the expectancy based on a 5-year average, although influenza cases reported by these same cities have been above the expectancy since the week ended February 18, and the deaths above the expectancy since the week ended February 25.

The accompanying tables present the numbers of cases of influenza reported weekly by States from the first of the year to and including the week ended April 1, and influenza and pneumonia data for a large group of cities, with an aggregate population of approximately 33,000,000, to and including the week ended March 25.

*Cases of influenza reported by weeks, Jan. 1-Apr. 1, 1939*

Division and State	Week ended—													
	Jan. 7	Jan. 14	Jan. 21	Jan. 28	Feb. 4	Feb. 11	Feb. 18	Feb. 25	Mar. 4	Mar. 11	Mar. 18	Mar. 25	Apr. 1	
NEW ENGLAND														
Maine.....	1	8	2	10	4	1	8	25	46	103	80	54	22	
New Hampshire.....				1							40			
Vermont.....														
Massachusetts.....										1				
Rhode Island.....														
Connecticut.....	10	6	13	4	7	26	22	29	30	141	20	133	7	
MIDDLE ATLANTIC														
New York <sup>1</sup> .....	44	57	37	155	159	183	137	101	91	57	83	60	41	
New Jersey.....	14	24	12	19	56	61	99	44	24	19	13	12	5	
Pennsylvania.....														
EAST NORTH CENTRAL														
Ohio.....														
Indiana.....	12	11	22	4	21	21	363	1,085	607	35	210	155	84	
Illinois.....	18	12	60	30	36	227	955	1,478	1,241	838	541	326	73	
Michigan.....			1	2		1	39	255	429	674	220	208	243	
Wisconsin.....	62	65	52	47	68	65	86	846	584	1,516	1,454	969	544	
WEST NORTH CENTRAL														
Minnesota.....		2	8	2		1	3	24	12	40	22	34	14	
Iowa.....		4	10	2	1	8	27	291	1,083	695	643	299	156	
Missouri.....	70	59	24	83	24	42	137		644	678	452	144	27	
North Dakota.....	34	11	12	6	27	15	14	64	364	741	254	414	149	
South Dakota.....	6			2	1	10	3	6	77	80	22	40	33	
Nebraska.....				1					2	1	22	7	2	
Kansas.....	16	9	9	6	6	3	9	77	110	226	205	70	66	

<sup>1</sup> New York City only.

## Cases of influenza reported by weeks, Jan. 1-Apr. 1, 1939—Continued

Division and State	Week ended—												
	Jan. 7	Jan. 14	Jan. 21	Jan. 28	Feb. 4	Feb. 11	Feb. 18	Feb. 25	Mar. 4	Mar. 11	Mar. 18	Mar. 25	Apr. 1
SOUTH ATLANTIC													
Delaware													1
Maryland	4	5	12	10	61	103	182	209	124	53	79	19	67
District of Columbia	2	2	6		5	5	18	25	25	11	3	3	2
Virginia	454	420	282	617	1,100	553	1,338	1,604	1,509	1,991	2,443	1,766	930
West Virginia	21	13	34	41	21	26	33	36	271	71	218	118	512
North Carolina	3	7	28	9	9	18	71	230	97	386	172	105	37
South Carolina	909	495	865	649	772	701	972	592	1,181	1,142	872	1,638	1,265
Georgia	133	136	143	110	131	118	139	110	140	420	286	565	1,086
Florida	1	1	2	5		1	1		9	3	5	19	25
EAST SOUTH CENTRAL													
Kentucky	56	65	37	27	198	54	478	405	1,348	1,792	560	412	259
Tennessee	36	64	87	109	58	75	63	83	146	469	420	516	424
Alabama	158	191	188	169	259	186	160	180	599	1,126	1,862	2,154	2,502
Mississippi													
WEST SOUTH CENTRAL													
Arkansas	181	203	145	139	150	87	113	182	1,473	1,532	577	1,031	697
Louisiana	7	36	12	8	10	20	11	9	30	82	27	64	11
Oklahoma	222	149	119	193	162	207	129	193	334	387	682	466	343
Texas	492	716	531	703	699	621	983	737	965	968	1,718	1,773	2,440
MOUNTAIN													
Montana	5	26	33	50	25	42	35	200	126	125	145	406	198
Idaho	4	2	1	1	1			12	1	14	4		76
Wyoming									1	8		2	1
Colorado	21	21	31	45	35	93	125	121	150	136	73	74	30
New Mexico	2	1	21	10	6	9	1	3	57	677	670	198	101
Arizona	138	117	132	81	68	114	82	94	144	191	476	307	391
Utah	7	1	2	9	20	24	16	44	53	119	86	71	95
PACIFIC													
Washington		4	1			1	3		8	3		20	
Oregon	71	39	46	53	25	40	42	34	97	261	118	63	79
California	41	41	82	33	76	43	28	59	50	73	209	239	553
Total	3,255	3,018	3,097	3,395	4,310	3,802	6,895	8,987	14,288	18,135	15,921	14,953	13,590

Reports from a group of 90 cities in the United States, with an aggregate population of approximately 33,000,000

	Week ended—											
	Jan. 7	Jan. 14	Jan. 21	Jan. 28	Feb. 4	Feb. 11	Feb. 18	Feb. 25	Mar. 4	Mar. 11	Mar. 18	Mar. 25
Influenza:												
Cases, current year.....	208	260	312	311	411	688	1,413	1,339	1,285	1,124	1,165	817
5-year average.....	899	1,145	1,320	1,299	1,270	1,122	989	839	736	629	530	409
Deaths, current year.....	74	61	71	57	71	73	104	150	200	181	161	139
5-year average.....	132	150	160	159	157	150	144	139	128	119	112	103
Pneumonia:												
Deaths, current year.....	811	771	702	726	758	813	871	943	917	907	818	741
5-year average.....	1,010	1,040	1,056	1,019	992	983	993	994	969	972	949	913

## DEATHS DURING WEEK ENDED MARCH 18, 1939

[From the Weekly Health Index, issued by the Bureau of the Census, Department of Commerce]

	Week ended Mar. 18, 1939	Correspond- ing week, 1938
Data from 88 large cities of the United States:		
Total deaths.....	9,549	18,884
Average for 3 prior years.....	<sup>1</sup> 9,370	
Total deaths, first 11 weeks of year.....	104,798	98,926
Deaths under 1 year of age.....	565	<sup>1</sup> 544
Average for 3 prior years.....	<sup>1</sup> 573	
Deaths under 1 year of age, first 11 weeks of year.....	6,121	5,995
Data from industrial insurance companies:		
Policies in force.....	67,772,489	60,714,284
Number of death claims.....	18,305	13,368
Deaths claims per 1,000 policies in force, annual rate.....	14.1	10.0
Death claims per 1,000 policies, first 11 weeks of year, annual rate.....	10.9	10.1

<sup>1</sup> Data for 86 cities.

# PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

## UNITED STATES

### CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers.

In these and the following tables, a zero (0) indicates a positive report and has the same significance as any other figure, while leaders (---) represent no report, with the implication that cases or deaths may have occurred but were not reported to the State health officer.

Cases of certain diseases reported by telegraph by State health officers for the week ended March 25, 1939, rates per 100,000 population (annual basis), and comparison with corresponding week of 1938 and 5-year median

Division and State	Diphtheria				Influenza				Measles			
	Mar. 25, 1939, rate	Mar. 25, 1939, cases	Mar. 26, 1938, cases	1934-38, median	Mar. 25, 1939, rate	Mar. 25, 1939, cases	Mar. 26, 1938, cases	1934-38, median	Mar. 25, 1939, rate	Mar. 25, 1939, cases	Mar. 26, 1938, cases	1934-38, median
<b>NEW ENG.</b>												
Maine.....	0	0	2	2	326	54	13	13	109	18	299	75
New Hampshire.....	0	0	0	0	---	---	---	1	---	---	11	11
Vermont.....	13	1	1	1	---	---	---	---	322	24	136	17
Massachusetts.....	4	3	3	5	---	---	---	---	1,168	963	287	782
Rhode Island.....	8	1	0	0	---	---	---	---	137	18	2	31
Connecticut.....	6	2	5	8	395	133	5	5	2,048	690	34	85
<b>MID. ATL.</b>												
New York.....	12	30	34	38	141	60	112	119	646	1,615	2,681	2,433
New Jersey.....	5	4	18	18	14	12	16	16	55	46	1,156	1,156
Pennsylvania.....	26	52	40	40	---	---	---	---	66	130	5,691	2,449
<b>E. NO. CEN.</b>												
Ohio.....	5	6	22	22	---	---	---	18	17	22	3,509	904
Indiana.....	16	11	26	15	230	155	18	46	21	14	1,322	440
Illinois.....	16	24	37	33	214	326	11	47	13	20	6,164	1,908
Michigan.....	11	10	12	12	220	208	1	6	259	245	5,326	141
Wisconsin.....	0	0	5	5	1,703	969	30	41	1,351	769	5,002	1,363
<b>W. NO. CEN.</b>												
Minnesota.....	0	0	3	3	66	34	1	1	1,303	672	120	287
Iowa.....	16	8	2	11	606	299	5	12	192	95	169	169
Missouri.....	13	10	21	24	185	144	71	192	23	18	974	696
North Dakota.....	15	2	0	1	3,023	414	6	5	467	64	66	66
South Dakota.....	0	0	0	0	301	40	---	---	1,277	170	---	2
Nebraska.....	11	3	1	3	27	7	1	1	630	165	85	85
Kansas.....	20	7	3	11	196	70	16	11	81	29	434	263
<b>SO. ATL.</b>												
Delaware.....	0	0	0	0	20	1	---	---	79	4	24	24
Maryland.....	6	2	6	7	59	19	13	27	2,269	736	90	173
District of Columbia.....	24	3	6	13	24	8	1	1	550	68	18	77
Virginia.....	22	12	11	14	3,310	1,766	---	---	982	524	427	427
West Virginia.....	27	10	10	8	317	118	33	79	22	8	695	92
North Carolina.....	34	23	20	12	153	105	5	49	1,918	1,313	3,115	613
South Carolina.....	38	14	6	6	4,469	1,636	314	586	74	27	499	36
Georgia.....	13	8	12	10	938	565	---	72	212	128	390	---
Florida.....	31	1	15	7	87	19	2	11	250	83	726	65

See footnotes at end of table.

*Cases of certain diseases reported by telegraph by State health officers for the week ended March 25, 1939, rates per 100,000 population (annual basis), and comparison with corresponding week of 1938 and 5-year median—Continued*

Division and State	Diphtheria				Influenza				Measles			
	Mar. 25, 1939, rate	Mar. 25, 1939, cases	Mar. 26, 1938, cases	1934-38, median	Mar. 25, 1939, rate	Mar. 25, 1939, cases	Mar. 26, 1938, cases	1934-38, median	Mar. 25, 1939, rate	Mar. 25, 1939, cases	Mar. 26, 1938, cases	1934-38, median
<b>E. SO. CEN.</b>												
Kentucky.....	10	6	17	8	716	412	24	79	33	19	548	548
Tennessee.....	5	3	7	9	910	516	78	135	49	28	553	106
Alabama.....	30	17	22	12	3,791	2,154	129	371	370	210	1,038	519
Mississippi.....	18	7	6	5								
<b>W. SO. CEN.</b>												
Arkansas.....	20	8	8	7	2,558	1,031	99	110	218	88	340	192
Louisiana.....	27	11	8	19	155	64	20	70	392	162	9	84
Oklahoma.....	20	10	7	7	937	466	108	163	384	191	86	86
Texas.....	26	31	47	47	1,469	1,773	510	558	240	290	418	418
<b>MOUNTAIN</b>												
Montana.....	9	1	1	1	3,801	406			2,310	250	73	62
Idaho.....	0	0	1	1			14	6	837	82	1	25
Wyoming.....	0	0	0	0	44	2			1,156	53	33	33
Colorado.....	43	9	11	3	356	74			1,127	234	576	299
New Mexico.....	49	4	10	5	2,447	198	1	1	840	68	116	42
Arizona.....	0	0	2	2	3,767	307	102	64	245	20	19	37
Utah.....	0	0	2	1	705	71			1,261	127	329	20
<b>PACIFIC</b>												
Washington.....	3	1	1	1	62	20	16	16	2,060	668	9	196
Oregon.....	10	2	3	1	313	63	44	54	338	68	50	142
California.....	19	23	30	30	196	239	45	83	3,701	4,513	541	984
<b>Total.....</b>	<b>15</b>	<b>380</b>	<b>504</b>	<b>507</b>	<b>705</b>	<b>14,953</b>	<b>1,765</b>	<b>2,955</b>	<b>638</b>	<b>15,779</b>	<b>44,191</b>	<b>33,230</b>
<b>12 weeks.....</b>	<b>21</b>	<b>6,208</b>	<b>7,301</b>	<b>7,509</b>	<b>393</b>	<b>100,056</b>	<b>33,342</b>	<b>87,599</b>	<b>514</b>	<b>152,500</b>	<b>374,502</b>	<b>276,155</b>

Division and State	Meningitis, meningococcus				Poliomyelitis				Scarlet fever			
	Mar. 25, 1939, rate	Mar. 25, 1939, cases	Mar. 26, 1938, cases	1934-38, median	Mar. 25, 1939, rate	Mar. 25, 1939, cases	Mar. 26, 1938, cases	1934-38, median	Mar. 25, 1939, rate	Mar. 25, 1939, cases	Mar. 26, 1938, cases	1934-38, median
<b>NEW ENG.</b>												
Maine.....	0	0	0	0	0	0	0	0	145	24	17	17
New Hampshire.....	0	0	0	0	0	0	0	0	41	4	12	15
Vermont.....	0	0	0	0	0	0	0	0	134	10	20	20
Massachusetts.....	1.2	1	4	4	0	0	0	0	228	194	439	280
Rhode Island.....	0	0	1	1	0	0	0	0	92	12	37	29
Connecticut.....	0	0	0	0	0	0	0	0	321	108	117	117
<b>MID. ATL.</b>												
New York.....	0	0	8	14	0	0	2	0	280	699	1,028	1,056
New Jersey.....	1.2	1	0	3	0	0	0	0	268	225	177	177
Pennsylvania.....	4	7	5	6	0	0	0	0	212	417	562	623
<b>E. NO. CEN.</b>												
Ohio.....	0	0	5	5	0	0	1	2	238	310	434	434
Indiana.....	1.5	1	2	3	0	0	1	0	270	182	149	244
Illinois.....	0.7	1	1	13	1.3	2	3	2	330	503	592	779
Michigan.....	2.1	2	4	3	0	0	0	0	537	508	538	538
Wisconsin.....	1.8	11	0	2	0	0	11	0	353	201	159	432

See footnotes at end of table.



Cases of certain diseases reported by telegraph by State health officers for the week ended March 25, 1939, rates per 100,000 population (annual basis), and comparison with corresponding week of 1938 and 5-year median—Continued

Division and State	Meningitis, meningococcus				Pollomyelitis				Scarlet fever			
	Mar. 25, 1939, rate	Mar. 25, 1939, cases	Mar. 26, 1938, cases	1934-38, median	Mar. 25, 1939, rate	Mar. 25, 1939, cases	Mar. 26, 1938, cases	1934-38, median	Mar. 25, 1939, rate	Mar. 25, 1939, cases	Mar. 26, 1938, cases	1934-38, median
<b>W. NO. CEN.</b>												
Minnesota.....	0	0	0	2	0	0	1	0	188	97	180	180
Iowa.....	0	0	0	1	0	0	2	1	294	145	224	224
Missouri.....	0	0	2	4	1.3	1	0	0	140	109	211	211
North Dakota.....	0	0	0	0	0	0	0	0	51	7	22	33
South Dakota.....	0	0	0	0	0	0	0	0	135	18	13	18
Nebraska.....	4	1	1	1	0	0	0	0	118	31	41	42
Kansas.....	0	0	0	1	0	0	0	0	414	148	135	135
<b>SO. ATL.</b>												
Delaware.....	0	0	0	0	0	0	0	0	177	0	14	11
Maryland <sup>2</sup> .....	0	0	3	5	0	0	0	1	120	39	86	92
District of Columbia.....	8	1	1	2	0	0	0	0	129	16	28	19
Virginia.....	13	7	3	6	0	0	0	0	32	17	26	47
West Virginia.....	8	3	4	4	0	0	0	0	89	33	65	65
North Carolina.....	7	5	1	5	0	0	1	0	75	51	37	39
South Carolina <sup>3</sup> .....	2.7	1	1	0	11	4	0	0	14	5	4	4
Georgia <sup>3</sup> .....	1.7	1	1	1	0	0	1	1	12	7	8	14
Florida <sup>3</sup> .....	0	0	1	1	6	2	0	0	53	11	5	5
<b>E. SO. CEN.</b>												
Kentucky.....	1.7	1	1	7	0	0	1	1	156	90	122	42
Tennessee.....	1.8	1	4	7	0	0	0	0	65	37	29	29
Alabama <sup>3</sup> .....	4	2	11	5	1.8	1	1	0	53	30	11	11
Mississippi <sup>2</sup> .....	2.5	1	0	0	0	0	0	0	23	9	7	7
<b>W. SO. CEN.</b>												
Arkansas.....	0	0	3	3	2.5	1	1	0	20	8	10	10
Louisiana <sup>3</sup> .....	5	2	2	0	0	0	0	0	27	11	13	15
Oklahoma.....	0	0	1	4	2	1	0	0	76	33	24	24
Texas <sup>3</sup> .....	4	5	2	6	0	0	1	1	74	89	126	74
<b>MOUNTAIN</b>												
Montana.....	0	0	0	0	0	0	0	0	169	18	16	16
Idaho.....	0	0	0	0	0	0	0	0	92	9	15	15
Wyoming.....	0	0	1	0	0	0	0	0	65	3	20	20
Colorado.....	0	0	0	0	0	0	0	0	140	29	61	61
New Mexico.....	25	2	0	2	0	0	0	0	346	28	20	20
Arizona.....	0	0	0	0	12	1	0	0	86	7	8	22
Utah <sup>2</sup> .....	0	0	0	0	0	0	0	0	209	21	50	50
<b>PACIFIC</b>												
Washington.....	0	0	0	1	0	0	0	0	139	45	46	50
Oregon.....	0	0	0	2	5	1	0	0	268	54	49	43
California.....	3	4	2	4	0	0	0	5	262	246	252	216
Total.....	2	51	75	159	0.6	14	17	18	195	4,912	6,209	7,410
12 weeks.....	2.1	638	1,084	1,479	0.6	184	255	248	212	63,907	73,614	80,773

See footnotes at end of table.

Cases of certain diseases reported by telegraph by State health officers for the week ended March 25, 1939, rates per 100,000 population (annual basis), and comparison with corresponding week of 1938 and 5-year median—Continued

Division and State	Smallpox				Typhoid and paratyphoid fever				Whooping cough		
	Mar. 25, 1939, rate	Mar. 25, 1939, cases	Mar. 26, 1938, cases	1934-38, median	Mar. 25, 1939, rate	Mar. 25, 1939, cases	Mar. 26, 1938, cases	1934-38, median	Mar. 25, 1939, rate	Mar. 25, 1939, cases	Mar. 26, 1938, cases
<b>NEW ENG.</b>											
Maine.....	0	0	0	0	6	1	2	2	332	55	52
New Hampshire.....	0	0	0	0	0	0	0	0	0	0	4
Vermont.....	0	0	0	0	0	0	0	0	429	32	30
Massachusetts.....	0	0	0	0	0	0	2	2	299	254	128
Rhode Island.....	0	0	0	0	0	0	1	1	947	124	25
Connecticut.....	0	0	0	0	0	0	1	1	315	106	75
<b>MID. ATL.</b>											
New York.....	0	0	0	0	2	4	8	8	218	545	449
New Jersey.....	0	0	0	0	5	4	1	1	498	418	199
Pennsylvania.....	0	0	0	0	7	14	8	7	148	292	281
<b>E. NO. CEN.</b>											
Ohio.....	16	21	18	1	2	3	2	2	112	146	223
Indiana.....	55	37	47	5	0	0	0	0	08	46	11
Illinois.....	3	5	53	19	5	8	10	3	184	281	114
Michigan <sup>1</sup> .....	13	12	12	3	0	0	2	2	162	153	259
Wisconsin.....	9	5	6	11	0	0	1	1	395	225	126
<b>W. NO. CEN.</b>											
Minnesota.....	14	7	16	13	0	0	1	1	83	43	42
Iowa.....	45	22	43	27	2	1	2	2	28	14	27
Missouri.....	28	22	55	10	0	0	4	2	21	16	41
North Dakota.....	7	1	18	4	0	0	0	0	66	0	9
South Dakota.....	8	1	11	3	0	0	0	0	8	1	31
Nebraska.....	27	7	1	14	0	0	0	0	23	6	9
Kansas.....	6	2	22	23	6	2	0	0	53	19	150
<b>SO. ATL.</b>											
Delaware.....	0	0	0	0	0	0	0	0	236	12	7
Maryland <sup>1,2</sup> .....	0	0	0	0	6	2	0	4	65	21	52
District of Columbia.....	0	0	0	0	0	0	0	0	283	35	6
Virginia.....	0	0	0	0	2	1	5	2	144	77	58
West Virginia.....	0	0	0	0	13	5	1	6	70	26	59
North Carolina.....	0	0	2	0	7	5	0	1	530	363	401
South Carolina <sup>3</sup> .....	0	0	0	0	8	3	0	2	303	111	112
Georgia <sup>3</sup> .....	2	1	1	0	7	4	3	2	58	35	16
Florida <sup>3</sup> .....	0	0	0	0	6	2	1	1	262	87	19
<b>E. SO. CEN.</b>											
Kentucky.....	3	2	12	0	2	1	2	2	12	7	85
Tennessee.....	5	3	10	0	2	1	6	2	23	13	62
Alabama <sup>3</sup> .....	7	4	4	0	2	1	5	2	144	82	40
Mississippi <sup>1</sup> .....	0	0	0	0	8	3	0	1			
<b>W. SO. CEN.</b>											
Arkansas.....	7	3	11	1	15	6	5	1	84	34	35
Louisiana <sup>3</sup> .....	2	1	0	1	36	15	23	9	48	20	22
Oklahoma.....	66	33	15	1	4	2	3	1	2	1	40
Texas <sup>3</sup> .....	24	29	14	14	12	14	15	9	86	104	342
<b>MOUNTAIN</b>											
Montana.....	0	0	10	14	0	0	0	0	9	1	16
Idaho.....	20	2	11	2	10	1	3	1	10	1	27
Wyoming.....	0	0	0	0	22	1	1	0	22	1	6
Colorado.....	10	2	13	3	5	1	3	0	462	96	24
New Mexico.....	0	0	0	1	0	0	3	2	161	13	21
Arizona.....	98	8	10	0	0	0	7	1	331	27	50
Utah <sup>1</sup> .....	10	1	2	0	0	0	0	0	397	40	34
<b>PACIFIC</b>											
Washington.....	3	1	34	11	0	0	2	2	68	22	139
Oregon.....	70	14	33	8	15	3	0	2	40	8	20
California.....	20	24	24	8	2	2	3	3	147	179	485
Total.....	11	270	508	272	4	110	136	111	170	4,201	4,473
12 weeks.....	15	4,520	6,706	2,608	5	1,406	1,438	1,438	171	50,641	49,408

<sup>1</sup> New York City only.

<sup>2</sup> Period ended earlier than Saturday.

<sup>3</sup> Typhus fever, week ended March 25, 1939, 30 cases as follows: Maryland, 1; South Carolina, 3; Georgia, 6; Florida, 1; Alabama, 7; Louisiana, 2; Texas, 10.

## SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of cases reported monthly by States is published weekly and covers only those States from which reports are received during the current week:

State	Menin- gitis, menin- gocoe- cus	Diph- theria	Influ- enza	Ma- laria	Meas- les	Pel- lagra	Polio- mye- litis	Scarlet fever	Small- pox	Ty- phoid and paraty- phoid fever
<i>February 1939</i>										
Hawaii Territory...	0	9	16	—	2	—	0	0	0	3
Illinois.....	5	128	3,056	7	114	—	1	2,075	45	12
Indiana.....	2	106	1,490	1	44	—	3	1,005	449	11
Kansas.....	1	36	231	1	86	—	0	630	20	5
Louisiana.....	5	66	94	15	679	4	4	60	1	124
Maryland.....	5	21	570	—	4,511	1	0	178	0	2
Mississippi.....	8	19	8,716	954	2,739	262	4	37	2	2
Montana.....	2	5	297	—	1,766	—	0	128	8	4
Nebraska.....	2	15	—	—	237	—	0	215	19	0
Nevada.....	0	0	14	—	468	—	0	6	0	0
New York.....	20	77	—	2	5,062	—	2	2,549	0	14
North Dakota.....	3	6	118	—	1,007	—	0	63	9	2
Oklahoma.....	4	28	706	24	741	12	0	258	95	11
Oregon.....	0	7	147	1	136	—	1	196	17	1
Pennsylvania.....	25	161	—	—	634	2	2	1,780	0	23
Rhode Island.....	4	2	4	—	70	—	1	64	0	1
South Dakota.....	0	17	94	—	1,556	—	1	91	37	0
Virginia.....	3	57	5,755	2	600	3	4	171	0	6
Washington.....	4	11	27	—	1,061	—	1	251	11	8

<i>February 1939</i>		<i>February 1939—Continued</i>		<i>February 1939—Continued</i>	
Actinomycosis:	Cases	Encephalitis:	Cases	Mumps—Continued.	Cases
Hawaii Territory.....	1	Illinois.....	2	Rhode Island.....	345
Chickenpox:		Kansas.....	1	South Dakota.....	51
Hawaii Territory.....	241	Maryland.....	1	Virginia.....	531
Illinois.....	1,920	New York.....	7	Washington.....	36
Indiana.....	500	North Dakota.....	1	Ophthalmia neonatorum:	
Kansas.....	561	Washington.....	2	Hawaii Territory.....	1
Louisiana.....	133	German measles:		Illinois.....	1
Maryland.....	551	Illinois.....	36	Louisiana.....	1
Mississippi.....	1,023	Kansas.....	0	Mississippi.....	14
Montana.....	152	Maryland.....	30	Montana.....	1
Nebraska.....	260	Montana.....	2	New York.....	9
Nevada.....	1	New York.....	101	Pennsylvania.....	3
New York.....	2,779	North Dakota.....	3	Puerperal septicemia:	
North Dakota.....	40	Pennsylvania.....	61	Mississippi.....	31
Oklahoma.....	142	Rhode Island.....	3	North Dakota.....	1
Oregon.....	226	Washington.....	10	Rabies in animals:	
Pennsylvania.....	5,221	Hookworm disease:		Illinois.....	36
Rhode Island.....	195	Hawaii Territory.....	12	Indiana.....	26
South Dakota.....	98	Louisiana.....	46	Louisiana.....	12
Virginia.....	375	Mississippi.....	431	Mississippi.....	15
Washington.....	743	Impetigo contagiosa:		New York.....	10
Conjunctivitis, infectious:		Hawaii Territory.....	9	Oklahoma.....	17
Hawaii Territory.....	79	Illinois.....	22	Oregon.....	2
Maryland.....	1	Kansas.....	10	Washington.....	49
Dengue:		Maryland.....	5	Rocky Mountain spotted fever:	
Hawaii Territory.....	1	Montana.....	5	Illinois.....	1
Mississippi.....	3	Oregon.....	57	Montana.....	1
Dysentery:		Jaundice, infectious:		Scabies:	
Illinois (amoebic).....	5	Hawaii.....	1	Kansas.....	20
Illinois (amoebic car- riers).....	7	Maryland.....	4	Maryland.....	2
Illinois (bacillary).....	17	Leprosy:		Montana.....	1
Indiana (amoebic).....	2	Hawaii Territory.....	3	Oklahoma.....	14
Louisiana (amoebic).....	7	Louisiana.....	1	Oregon.....	38
Maryland (amoebic).....	1	Mumps:		Septic sore throat:	
Maryland (bacillary).....	4	Hawaii Territory.....	329	Illinois.....	18
Mississippi (amoebic).....	134	Illinois.....	244	Kansas.....	22
Mississippi (bacillary).....	240	Indiana.....	246	Louisiana.....	8
New York (amoebic).....	6	Kansas.....	1,347	Maryland.....	36
New York (bacillary).....	29	Louisiana.....	3	Montana.....	1
Oklahoma (bacillary).....	18	Maryland.....	259	Nebraska.....	14
Oregon (amoebic).....	1	Mississippi.....	534	New York.....	113
Pennsylvania (bacil- lary).....	1	Montana.....	13	Oklahoma.....	55
Rhode Island (bacil- lary).....	1	Nebraska.....	87	Oregon.....	16
Virginia (amoebic).....	1	Nevada.....	34	Rhode Island.....	19
Virginia (bacillary).....	65	North Dakota.....	22	South Dakota.....	7
		Oklahoma.....	13	Virginia.....	178
		Oregon.....	130	Washington.....	7
		Pennsylvania.....	3,017		

## Summary of monthly reports from States—Continued

February 1939—Continued		February 1939—Continued		February 1939—Continued	
Tetanus:	Cases	Typhus fever:	Cases	Vincent's infection—Con.	Cases
Hawaii Territory.....	1	Hawaii Territory.....	2	Oklahoma.....	12
Illinois.....	1	Louisiana.....	2	Oregon.....	25
Maryland.....	2	Mississippi.....	6	Whooping cough:	
New York.....	2	New York.....	1	Hawaii Territory.....	41
Washington.....	2	Virginia.....	1	Illinois.....	1,253
Trachoma:		Undulant fever:		Indiana.....	449
Hawaii Territory.....	5	Hawaii Territory.....	1	Kansas.....	83
Illinois.....	14	Illinois.....	11	Louisiana.....	39
Mississippi.....	9	Kansas.....	2	Maryland.....	115
Montana.....	4	Louisville.....	2	Mississippi.....	968
Oklahoma.....	4	Maryland.....	1	Montana.....	39
Trichinosis:		Mississippi.....	2	Nebraska.....	27
Hawaii Territory.....	5	New York.....	13	Nevada.....	8
Maryland.....	1	Oklahoma.....	71	New York.....	2,119
New York.....	18	Oregon.....	1	North Dakota.....	45
Tularaemia:		Pennsylvania.....	12	Oklahoma.....	5
Illinois.....	26	Rhode Island.....	3	Oregon.....	62
Indiana.....	7	Virginia.....	1	Pennsylvania.....	1,733
Louisiana.....	12	Washington.....	4	Rhode Island.....	256
Maryland.....	2	Vincent's infection:		South Dakota.....	19
Montana.....	1	Illinois.....	22	Virginia.....	247
Oklahoma.....	2	Kansas.....	9	Washington.....	11
Pennsylvania.....	6	Maryland.....	6		
Virginia.....	1	New York <sup>1</sup> .....	60		
Washington.....	1	North Dakota.....	2		

<sup>1</sup> Exclusive of New York City.

## PLAGUE INFECTION IN CALIFORNIA AND WASHINGTON

IN FLEAS FROM GROUND SQUIRRELS IN CONTRA COSTA COUNTY, AND  
IN A GROUND SQUIRREL IN SAN BENITO COUNTY, CALIF.

Under date of March 16, 1939, Dr. Walter M. Dickie, State Director of Public Health of California, reported plague infection proved in a pool of 269 fleas from 27 *C. beecheyi* ground squirrels submitted to the laboratory on March 3 from a ranch 8 miles northwest of Brentwood, Contra Costa County, Calif. Under the same date Dr. Dickie also reported plague infection proved in organs from 1 *C. beecheyi* ground squirrel submitted to the laboratory on March 1 from a ranch 6 miles north and 9 miles east of Hollister, San Benito County, Calif.

IN FLEAS AND LICE FROM GROUND SQUIRRELS IN ADAMS COUNTY, WASH.

Under date of March 24, 1939, Senior Surg. C. R. Eskey reported plague infection proved in 2 pools of 168 fleas and 1 pool of 29 lice collected from 11 ground squirrels, *C. townsendi*, shot March 14 on Providence Hill, 7 miles west of Lind, Adams County, Wash.

## WEEKLY REPORTS FROM CITIES

City reports for week ended Mar. 18, 1939

This table summarizes the reports received weekly from a selected list of 140 cities for the purpose of showing a cross section of the current urban incidence of the communicable diseases listed in the table.

State and city	Diph- theria cases	Influenza		Meas- les cases	Pneu- monia deaths	Scar- let fever cases	Small- pox cases	Tuber- culosis deaths	Ty- phoid fever cases	Whoop- ing cough cases	Deaths, all causes
		Cases	Deaths								
Data for 90 cities: 5-year average	176	530	112	8,708	949	2,579	27	405	20	1,394	-----
Current week <sup>1</sup>	127	1,165	161	4,537	815	1,505	30	354	23	1,079	-----
<b>Maine:</b>											
Portland	0	2	1	1	2	0	0	0	0	5	26
<b>New Hampshire:</b>											
Concord	0	-----	0	0	1	0	0	0	0	0	14
Nashua	0	-----	0	0	0	0	0	0	0	0	13
<b>Vermont:</b>											
Barre	0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Burlington	0	-----	0	0	0	0	0	0	0	3	10
Rutland	0	-----	0	0	1	0	0	0	0	0	6
<b>Massachusetts:</b>											
Boston	0	-----	3	180	28	46	0	9	1	28	279
Fall River	0	-----	0	2	3	0	0	1	0	0	27
Springfield	0	-----	0	23	3	1	0	0	0	4	46
Worcester	1	-----	0	2	13	14	0	2	0	38	84
<b>Rhode Island:</b>											
Pawtucket	0	-----	0	0	2	0	0	0	0	1	17
Providence	0	-----	0	3	9	10	0	1	0	27	84
<b>Connecticut:</b>											
Bridgeport	0	2	0	1	4	4	0	1	0	0	37
Hartford	0	-----	0	111	9	5	0	2	0	17	48
New Haven	0	4	0	80	3	7	0	0	1	8	48
<b>New York:</b>											
Buffalo	0	3	3	171	11	60	0	7	0	29	153
New York	21	38	5	74	122	224	0	70	3	117	1,598
Rochester	0	2	0	102	1	25	0	1	0	16	74
Syracuse	0	-----	0	75	4	16	0	2	0	34	52
<b>New Jersey:</b>											
Camden	1	2	1	1	0	11	0	2	0	4	24
Newark	0	-----	0	4	7	83	0	6	0	74	118
Trenton	0	-----	1	2	3	3	0	3	1	5	38
<b>Pennsylvania:</b>											
Philadelphia	0	10	8	42	32	66	0	17	4	95	509
Pittsburgh	7	28	15	7	26	30	0	10	0	12	174
Reading	9	-----	0	4	4	1	0	0	0	1	26
Scranton	1	-----	-----	1	-----	21	0	-----	0	7	-----
<b>Ohio:</b>											
Cincinnati	7	6	9	1	25	22	0	4	0	0	191
Cleveland	2	117	5	4	39	72	0	9	0	40	274
Columbus	0	1	1	0	9	5	0	2	0	3	125
Toledo	1	6	4	2	5	10	0	4	0	16	75
<b>Indiana:</b>											
Anderson	0	-----	1	1	2	3	0	1	0	0	12
Fort Wayne	1	-----	3	0	7	2	0	2	0	0	49
Indianapolis	4	-----	7	3	23	36	13	5	0	9	132
Muncie	0	-----	0	0	4	2	1	1	0	0	16
South Bend	0	-----	1	1	8	2	0	0	0	1	23
Terre Haute	1	-----	0	2	2	3	0	0	0	0	14
<b>Illinois:</b>											
Alton	0	1	0	0	2	3	0	0	0	0	10
Chicago	11	36	8	11	45	207	0	35	0	99	716
Elgin	0	-----	0	0	1	4	0	0	0	4	8
Moline	0	3	0	1	0	2	0	0	0	1	13
Springfield	0	4	0	1	4	3	0	0	0	3	30
<b>Michigan:</b>											
Detroit	8	1	5	10	32	98	0	23	1	67	314
Flint	0	-----	3	97	8	29	0	1	0	0	31
Grand Rapids	0	62	8	2	5	20	0	0	0	0	59
<b>Wisconsin:</b>											
Kenosha	0	-----	0	0	1	0	0	0	0	19	9
Madison	0	-----	0	1	2	3	0	0	0	14	11
Milwaukee	0	7	5	7	20	48	0	3	0	70	145
Racine	0	3	3	3	3	6	0	0	0	2	22
Superior	0	-----	0	2	0	2	0	0	0	0	11

<sup>1</sup> Figures for Barre estimated; report not received.

## City reports for week ended Mar. 18, 1939—Continued

State and city	Diph- theria cases	Influenza		Meas- les cases	Pneu- monia deaths	Scar- let fever cases	Small- pox cases	Tuber- culosis deaths	Ty- phoid fever cases	Whoop- ing cough cases	Deaths, all causes
		Cases	Deaths								
Minnesota:											
Duluth.....	0		0	5	2	2	0	0	0	0	28
Minneapolis.....	1		1	229	10	34	6	0	0	32	136
St. Paul.....	0	2	2	201	15	24	0	0	1	3	76
Iowa:											
Cedar Rapids.....	0			2		1	0		0	1	
Davenport.....	0			0		16	3		0	3	
Des Moines.....	0		0	1	0	19	2	0	0	0	55
Sioux City.....	0			13		2	0		0	1	
Waterloo.....	7			1		12	0		0	4	
Missouri:											
Kansas City.....	0		0	15	7	10	0	3	0	0	86
St. Joseph.....	0		0	0	9	2	0	0	0	0	34
St. Louis.....	3	9	4	1	13	35	2	2	0	12	261
North Dakota:											
Fargo.....	0		1	0	3	2	0	0	0	0	15
Grand Forks.....	0			2		2	0		0	0	
Minot.....	1	25	0	2	0	0	0	0	0	0	4
South Dakota:											
Aberdeen.....	0			1		1	5		0	0	
Sioux Falls.....	0		0	4	0	6	0	0	0	0	11
Nebraska:											
Lincoln.....	0			66		1	0		0	1	
Omaha.....	0		2	5	18	6	4	3	0	0	71
Kansas:											
Lawrence.....	0	19	0	0	3	0	0	0	0	0	12
Topeka.....	0	3	3	0	4	1	0	1	0	1	20
Wichita.....	0	4	0	4	5	1	0	0	0	3	35
Delaware:											
Wilmington.....	1		0	0	4	0	0	2	0	0	28
Maryland:											
Baltimore.....	2	14	2	713	17	26	0	9	0	13	241
Cumberland.....	0		0	0	2	0	0	0	0	0	18
Frederick.....	0		0	0	0	0	0	0	0	0	7
District of Colum- bia:											
Washington.....	8	3	2	39	8	20	0	6	0	20	183
Virginia:											
Lynchburg.....	1		0	149	0	2	0	0	0	11	8
Norfolk.....	3	22	0	14	1	4	0	0	0	0	24
Richmond.....	1		1	31	4	3	0	0	0	7	43
Roanoke.....	1		0	0	2	0	0	1	0	10	17
West Virginia:											
Charleston.....	0	5				0	0		0	0	
Huntington.....	1			0		1	0		0	0	
Wheeling.....	2		0	0	2	0	0	0	0	7	20
North Carolina:											
Gastonia.....	0			0		0	0		0	0	
Raleigh.....	0		0	0	2	3	0	0	0	0	11
Wilmington.....	0		0	2	2	0	0	0	0	1	6
Winston-Salem.....	2	9	1	244	2	1	0	0	0	0	10
South Carolina:											
Charleston.....	0	64	0	0	2	2	0	0	0	6	16
Florence.....	0		0	6	2	0	0	0	0	0	12
Greenville.....	0		1	0	2	0	0	1	0	3	10
Georgia:											
Atlanta.....	0	64	3	0	5	3	0	6	0	1	93
Brunswick.....	0		0	50	0	0	0	0	0	0	2
Savannah.....	1	70	1	1	1	0	0	1	0	12	28
Florida:											
Miami.....	0	2	1	1	1	3	0	2	1	4	32
Tampa.....	0		0	62	4	1	0	1	0	0	23
Kentucky:											
Ashland.....	0	13	0	0	1	0	0	0	0	0	6
Covington.....	0	4	0	1	7	14	0	3	0	0	21
Lexington.....	0		0	1	6	3	0	3	0	0	26
Louisville.....	0	135	0	1	7	12	0	3	0	1	74
Tennessee:											
Knoxville.....	0		2	0	3	1	0	0	0		19
Memphis.....	0	23	0	1	3	19	0	6	0	22	85
Nashville.....	0	1	6	1	8	8	0	5	0	2	71
Alabama:											
Birmingham.....	1	462	9	1	8	6	0	4	0	4	83
Mobile.....	1	3	2	13	4	0	0	1	1	0	23
Montgomery.....	1	7		3			0		0	2	



## City reports for week ended Mar. 18, 1939—Continued

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Small-pox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
Arkansas:											
Fort Smith.....	0	3	-----	12	-----	1	0	-----	0	0	-----
Little Rock.....	1	-----	0	0	7	0	0	1	0	0	-----
Louisiana:											
Lake Charles.....	0	-----	0	59	2	1	0	0	0	0	4
New Orleans.....	7	8	6	36	24	6	0	9	9	2	156
Shreveport.....	0	-----	0	6	7	1	0	1	0	0	32
Oklahoma:											
Oklahoma City.....	0	37	1	3	14	5	2	0	0	0	35
Tulsa.....	4	-----	-----	39	-----	11	0	-----	0	0	-----
Texas:											
Dallas.....	0	8	7	3	11	6	1	3	0	0	80
Fort Worth.....	0	30	2	3	6	5	0	0	0	0	-----
Galveston.....	0	-----	0	0	1	0	0	2	1	0	14
Houston.....	1	1	1	17	10	2	0	5	0	0	93
San Antonio.....	1	1	2	4	7	0	0	12	0	0	71
Montana:											
Billings.....	0	-----	0	5	2	3	0	0	0	0	6
Great Falls.....	0	5	1	36	7	1	0	1	0	0	16
Helena.....	0	1	1	31	0	0	0	0	0	0	4
Missoula.....	0	-----	0	24	0	4	0	0	0	0	4
Idaho:											
Boise.....	0	-----	0	7	2	1	0	0	0	2	9
Colorado:											
Colorado Springs.....	0	-----	0	62	2	9	0	0	0	3	12
Denver.....	0	-----	2	60	3	4	0	3	0	48	91
Pueblo.....	0	-----	1	35	0	1	0	0	0	2	6
New Mexico:											
Albuquerque.....	0	31	0	5	4	0	0	4	0	0	20
Utah:											
Salt Lake City.....	2	-----	1	9	4	5	0	1	0	2	39
Washington:											
Seattle.....	0	-----	0	89	8	9	2	3	0	2	78
Spokane.....	0	-----	0	135	0	3	0	0	0	0	33
Tacoma.....	0	-----	0	4	0	4	0	0	0	0	23
Oregon:											
Portland.....	0	1	0	5	6	12	11	1	0	2	75
Salem.....	0	1	-----	0	-----	0	0	-----	0	0	-----
California:											
Los Angeles.....	15	68	1	700	25	92	0	21	0	16	395
Sacramento.....	0	-----	0	274	5	1	2	4	0	1	42
San Francisco.....	2	9	3	208	13	20	0	9	0	7	190

State and city	Meningitis, meningococcus		Polio-myelitis cases	State and city	Meningitis, meningococcus		Polio-myelitis cases
	Cases	Deaths			Cases	Deaths	
Massachusetts:				Maryland:			
Boston.....	1	1	0	Baltimore.....	2	0	0
New York:				Tennessee:			
New York.....	1	2	0	Knoxville.....	1	0	0
Ohio:				Texas:			
Toledo.....	1	0	0	Houston.....	1	0	0
Indiana:				California:			
Indianapolis.....	1	0	0	San Francisco.....	0	1	0
Missouri:							
St. Louis.....	0	0	1				

*Encephalitis, epidemic or lethargic.*—Cases: New York, 3; Philadelphia, 1; Grand Rapids, 1; Racine, 1.  
*Pellagra.*—Cases: Lynchburg, 1; Atlanta, 1; Savannah, 2.  
*Typhus fever.*—Cases: Savannah, 1; Birmingham, 1; Mobile, 1.

## FOREIGN AND INSULAR

### CANADA

*Provinces—Communicable diseases—Week ended March 4, 1939.*—During the week ended March 4, 1939, cases of certain communicable diseases were reported by the Department of Pensions and National Health of Canada as follows:

Disease	Prince Edward Island	Nova Scotia	New Brun- swick	Que- bec	Onta- rio	Mani- toba	Sas- katch- ewan	Alber- ta	British Co- lumbia	Total
Cerebrospinal meningitis			1	2	1					4
Chickenpox		2		157	271	29	52	21	83	615
Diphtheria		2	10	41	7	3	13	2		78
Dysentery				10	3					13
Influenza	6	424	1		1,114	1	2		11	1,559
Lethargic encephalitis						1				1
Measles		114	13	261	1,131	18	4	8	1	1,550
Mumps	9		1	68	109	33		2	2	224
Pneumonia	1	10			47	1				67
Scarlet fever		10	36	81	207	56	20	19		438
Smallpox										8
Trachoma										1
Tuberculosis	1	2	12	51	47	14	2	1	18	148
Typhoid and paratyphoid fever				11	2	2			1	16
Whooping cough		26	1	48	270	10	12	1	37	405

*Vital statistics—Third quarter 1938.*—The Bureau of Statistics of the Dominion of Canada has published the following preliminary statistics for the third quarter of 1938. The rates are computed on an annual basis. There were 20.5 live births per 1,000 population during the third quarter of 1938 and 20.4 per 1,000 population during the third quarter of 1937. The death rate was 8.5 per 1,000 population during the third quarter of 1938 and 9.4 per 1,000 population for the same quarter of 1937. The infant mortality rate for the third quarter of 1938 was 57 per 1,000 live births and 79 per 1,000 live births for the corresponding quarter of 1937. The maternal death rate was 4.3 per 1,000 live births for the third quarter of 1938 compared with 4.0 per 1,000 live births for the same quarter of 1937.

The accompanying tables give the numbers of births, deaths, and marriages, by Provinces, for the third quarter of 1938 and deaths by causes in Canada for the third quarter of 1938 and the corresponding quarter of 1937:

## Number of births, deaths, and marriages, third quarter, 1938

Province	Live births	Deaths (exclusive of still births)	Deaths under 1 year of age	Maternal deaths	Marriages
Canada <sup>1</sup>	57,797	24,033	3,285	251	26,100
Prince Edward Island	493	201	14	2	164
Nova Scotia	2,884	1,226	152	11	1,173
New Brunswick	2,903	1,108	207	10	1,071
Quebec	19,838	7,423	1,449	111	8,494
Ontario	16,680	8,374	798	67	8,758
Manitoba	3,542	1,397	189	14	1,784
Saskatchewan	4,407	1,294	188	7	1,093
Alberta	3,931	1,311	163	15	1,848
British Columbia	3,219	1,699	125	14	1,715

<sup>1</sup> Exclusive of Yukon and the Northwest Territories.

## Deaths by cause, third quarter, 1938

Cause of death	Canada <sup>1</sup> (third quarter)		Province								
	1937	1938	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia
Automobile accidents	586	473		21	19	126	213	34	14	20	26
Cancer	2,980	3,055	30	161	128	801	1,126	212	165	190	242
Cerebral hemorrhage, cerebral embolism, and thrombosis	444	452	8	34	30	98	171	20	34	29	28
Diphtheria	2,454	997	6	34	57	482	237	71	57	34	19
Diseases of the arteries	86	91		4	5	64	1	3	8	5	1
Diseases of the heart	2,066	2,198	18	128	93	416	1,030	130	103	104	176
Homicides	3,579	3,623	36	149	141	880	1,550	198	209	180	280
Influenza	29	28		1	3	6	11		1	2	4
Measles	249	207		15	8	74	56	11	10	21	12
Nephritis	116	44		3		32	5	2	2		
Pneumonia	1,407	1,859	15	59	37	618	413	43	57	48	79
Poliomyelitis	898	1,001	10	38	60	267	304	66	61	57	78
Puerperal causes	143	39		2	3	13		8	1	10	2
Scarlet fever	230	251	2	11	10	111	67	14	7	15	14
Suicides	38	26				13	10			3	
Tuberculosis	265	230	1	13	3	87	88	20	14	28	26
Typhoid and paratyphoid fever	1,579	1,420	18	101	72	598	299	99	53	65	115
Violence	97	55		1	6	21	14	2	4	6	1
Other specified causes	1,466	1,363	7	66	55	431	465	53	67	59	130
Unspecified or ill-defined causes		6,881	49	375	341	2,248	2,200	372	418	424	454
Whooping cough	191	100				6	50	25	6	6	1

<sup>1</sup> Exclusive of Yukon and the Northwest Territories.

## JAMAICA

Communicable diseases—4 weeks ended March 18, 1939.—During the 4 weeks ended March 18, 1939, cases of certain communicable diseases were reported in Kingston, Jamaica, and in the island outside of Kingston, as follows:

Disease	Kingston	Other localities	Disease	Kingston	Other localities
Chickenpox	3	10	Poliomyelitis		1
Diphtheria		5	Puerperal sepsis		2
Dysentery	2	4	Tuberculosis	34	92
Erysipelas	1		Typhoid fever	5	44
Leprosy	1	1			

**CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER**

NOTE.—A table giving current information of the world prevalence of quarantinable diseases appeared in the PUBLIC HEALTH REPORTS for March 31, 1939, pages 547-559. A similar cumulative table will appear in future issues of the PUBLIC HEALTH REPORTS for the last Friday of each month.

**Cholera**

*India—Bassein.*—During the week ended March 18, 1939, 1 case of cholera was reported in Bassein, India.

**Plague**

*Hawaii Territory—Island of Hawaii—Hamakua District—Kukaiiau.*—Two rats found on February 25, 1939, in Kukaiiau, Hamakua Mill Sector, Hamakua District, Island of Hawaii, T. H., have been proved positive for plague.

*United States.*—A report of plague-infected fleas in Contra Costa County, and a plague-infected squirrel in San Benito County, Calif., and of plague-infected fleas and lice in Adams County, Wash., appears on page 586 of this issue of PUBLIC HEALTH REPORTS.

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